

Patent Claims

- 5 1. A power supply circuit for a motor vehicle electric system having:  
a starter generator (1),  
a power electronics system (LE),  
at least one battery (B),  
10 at least one dynamic energy accumulator (3) and a DC/DC converter (2),  
wherein the starter generator (1) can be connected to the vehicle electric system via a first connection branch in which the DC/DC converter (2) is arranged, characterized in  
15 that the starter generator (1) can be connected to the vehicle electric system via a second connection branch,  
wherein both the first and the second connection branches each have, at their side connected to the starter generator (1), a switch (S1, S2) by means of which the connection  
20 branch can be disconnected,  
the battery (B) is connected on the vehicle electric system side between the second connection branch and ground,  
the energy accumulator (3) is connected between the switch (S2) in the first connection branch and the DC/DC converter  
25 (2) between ground and the first connection branch, and  
a control device (5) is formed which actuates switches (S1, S2) in the first and the second connection branches and the DC/DC converter (2) in response to a charge state of the battery (B) and of the energy accumulator (3) and an  
30 operating state of the motor vehicle in such a way that  
- recuperation energy which is present in the energy accumulator (3) is stored and recuperation energy which is present is optionally used to charge the battery (B) if the energy accumulator (3) is fully charged,  
35 - drive support is provided by energy from the energy accumulator (3) as soon as the energy accumulator (3) is

charged after an initial start, and drive support is provided from the battery (B) up to this time,

- for a rapid start energy is used from the energy accumulator (3),

5    - the battery is charged according to its charge state as required, and

- after a recuperation the vehicle electric system is fed via the battery (B).

10   2. The power supply circuit for a motor vehicle electric system as claimed in claim 1, characterized in that a monitoring device (4) is also formed which monitors the charge state of the battery (B) and of the energy accumulator (3) and transfers the monitoring result to the  
15   control device (5).

3. The power supply circuit for a motor vehicle electric system as claimed in claim 1 or 2, characterized in that the switches (S1, S2) are embodied as controllable semiconductor  
20   switches.

4. The power supply circuit for a motor vehicle as claimed in one of claims 1 to 3, characterized in that the dynamic energy accumulator (4) is embodied as a capacitor.

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5. The power supply circuit for a motor vehicle as claimed in claim 4, characterized in that the capacitor is embodied as a supercap or ultracap.